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The procedure of the present invention specifies predetermined elements included in a matrix  $F$ , which is obtained by Fourier transform of master image data  $P_0$  (step S122), and adds a minute variation  $\Delta F$  of a predetermined magnitude to either a real number array  $FR$  or an imaginary number array  $FI$  of the predetermined elements (step S124 and S126). Here note that the minute variation  $\Delta F$  should be subtracted from corresponding elements, in order to keep the symmetry of the Fourier spectrum. A resulting image obtained by an inverse transform of the matrix with the minute variation  $\Delta F$  added thereto includes a phase difference pattern  $W_{01}$  that is embedded therein and corresponds to the minute variation  $\Delta F$ . As long as a master image is closed to the public, this embedded pattern can not be taken out of the resulting image nor be deleted by overwriting attacks. Even if the processed data with the digital watermark embedded therein is exposed to overwriting attacks of different pieces of watermark information by the similar algorithm, the arrangement of the invention enables the digital watermark embedded in the master data to be taken out accurately. The similar series of processing may be carried out with regard to a specific area of the low frequency component obtained by wavelet transform of the master image.